

**Table A3. Approximate Heat Content of Petroleum Consumption and Biofuels Production, Selected Years, 1949-2009**  
 (Million Btu per Barrel)

Year	Total Petroleum <sup>1</sup> Consumption by Sector						Liquefied Petroleum Gases Consumption <sup>6</sup>	Motor Gasoline Consumption <sup>7</sup>	Fuel Ethanol <sup>8</sup>	Fuel Ethanol Feedstock Factor <sup>9</sup>	Biodiesel	Biodiesel Feedstock Factor <sup>10</sup>
	Residential	Commercial <sup>2</sup>	Industrial <sup>2</sup>	Trans- portation <sup>2,3</sup>	Electric Power <sup>4,5</sup>	Total <sup>2</sup>						
1949	R5.511	R5.824	5.946	5.465	6.254	5.649	4.011	5.253	NA	NA	NA	NA
1950	R5.500	R5.829	5.940	5.461	6.254	5.649	4.011	5.253	NA	NA	NA	NA
1955	R5.498	R5.794	5.867	5.408	6.254	5.591	4.011	5.253	NA	NA	NA	NA
1960	R5.451	R5.798	5.800	5.388	6.267	5.555	4.011	5.253	NA	NA	NA	NA
1965	R5.403	R5.780	5.728	5.387	6.267	5.532	4.011	5.253	NA	NA	NA	NA
1970	R5.244	R5.700	5.603	5.393	6.252	5.503	63.779	5.253	NA	NA	NA	NA
1971	R5.240	R5.684	5.598	5.389	6.245	5.504	3.772	5.253	NA	NA	NA	NA
1972	R5.221	R5.658	5.563	5.388	6.233	5.500	3.760	5.253	NA	NA	NA	NA
1973	R5.233	R5.677	5.569	5.395	6.245	5.515	3.746	5.253	NA	NA	NA	NA
1974	R5.223	R5.668	5.538	5.394	6.238	5.504	3.730	5.253	NA	NA	NA	NA
1975	R5.219	R5.631	5.527	5.392	6.250	5.494	3.715	5.253	NA	NA	NA	NA
1976	R5.243	R5.655	5.536	5.395	6.251	5.504	3.711	5.253	NA	NA	NA	NA
1977	R5.242	R5.661	5.554	5.400	6.249	5.518	3.677	5.253	NA	NA	NA	NA
1978	R5.242	R5.643	5.554	5.404	6.251	5.519	3.669	5.253	NA	NA	NA	NA
1979	R5.330	R5.701	5.419	5.428	6.258	5.494	3.680	5.253	NA	NA	NA	NA
1980	R5.280	R5.735	5.374	5.440	6.254	5.479	3.674	5.253	R3.563	6.586	NA	NA
1981	R5.231	R5.671	5.312	5.432	6.258	5.448	3.643	5.253	R3.563	6.562	NA	NA
1982	R5.205	R5.673	5.263	5.422	6.258	5.415	3.615	5.253	R3.563	6.539	NA	NA
1983	R5.064	R5.565	5.275	5.415	6.255	5.406	3.614	5.253	R3.563	6.515	NA	NA
1984	R5.247	R5.634	5.222	5.418	6.251	5.395	3.599	5.253	R3.563	6.492	NA	NA
1985	R5.198	R5.568	5.215	5.422	6.247	5.387	3.603	5.253	R3.563	6.469	NA	NA
1986	R5.214	R5.609	5.283	5.425	6.257	5.418	3.640	5.253	R3.563	6.446	NA	NA
1987	R5.188	R5.571	5.248	5.429	6.249	5.403	3.659	5.253	R3.563	6.423	NA	NA
1988	R5.206	R5.573	5.241	5.433	6.250	5.410	3.652	5.253	R3.563	6.400	NA	NA
1989	R5.146	R5.525	5.234	5.437	6.240	5.410	3.683	5.253	R3.563	6.377	NA	NA
1990	R5.073	R5.521	5.270	5.442	6.244	5.411	3.625	5.253	R3.563	6.355	NA	NA
1991	R5.014	R5.491	5.186	5.440	6.246	5.384	3.614	5.253	R3.563	6.332	NA	NA
1992	R5.050	R5.477	5.185	5.442	6.238	5.378	3.624	5.253	R3.563	6.309	NA	NA
1993	R5.019	R5.461	25.196	25.436	6.230	25.379	3.606	5.253	R3.563	6.287	NA	NA
1994	R5.026	R5.477	5.166	5.424	6.213	5.361	3.635	R5.230	R3.563	6.264	NA	NA
1995	R4.982	R5.435	5.137	5.417	6.188	5.341	3.623	5.215	R3.563	6.242	NA	NA
1996	R4.906	R5.384	5.133	5.420	6.195	5.336	3.613	5.216	R3.563	6.220	NA	NA
1997	R4.897	R5.341	5.138	5.416	6.199	5.336	3.616	5.213	R3.563	6.198	NA	NA
1998	R4.882	R5.313	5.155	5.413	6.210	5.349	3.614	5.212	R3.563	6.176	NA	NA
1999	R4.801	R5.231	5.113	5.413	6.205	5.328	3.616	5.211	R3.563	6.167	NA	NA
2000	R4.804	R5.257	5.082	5.421	6.189	5.326	3.607	5.210	R3.563	6.159	NA	NA
2001	R4.838	R5.270	5.164	5.412	6.199	5.345	3.614	5.210	R3.563	6.151	5.359	5.433
2002	R4.781	R5.234	5.116	5.410	6.173	5.324	3.613	5.208	R3.563	6.143	5.359	5.433
2003	R4.812	R5.253	5.161	5.408	6.182	5.340	3.629	5.207	R3.563	R6.116	5.359	5.433
2004	R4.858	R5.271	5.164	5.420	6.192	5.350	3.618	5.215	R3.563	R6.089	5.359	5.433
2005	R4.818	R5.312	5.200	5.426	6.188	5.365	3.620	5.218	R3.563	R6.063	5.359	5.433
2006	R4.787	R5.251	5.179	5.431	6.143	5.353	3.605	5.218	R3.563	R6.036	5.359	5.433
2007	R4.731	R5.235	5.146	5.433	6.151	5.346	3.591	5.219	R3.563	R6.009	5.359	5.433
2008	R4.598	R5.095	R5.175	R5.426	R6.123	5.339	R3.600	5.218	R3.563	R5.983	5.359	5.433
2009	E4.512	E5.015	E5.080	E5.412	P6.105	P5.303	P3.553	P5.218	3.563	5.957	5.359	5.433

<sup>1</sup> Petroleum products supplied, including natural gas plant liquids and crude oil burned directly as fuel. Quantity-weighted averages of the petroleum products included in each category are calculated by using heat content values shown in Table A1.

<sup>2</sup> Beginning in 1993, includes fuel ethanol blended into motor gasoline.

<sup>3</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>4</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

<sup>5</sup> Electric power sector factors are weighted average heat contents for distillate fuel oil, petroleum coke, and residual fuel oil; they exclude other liquids.

<sup>6</sup> There is a discontinuity in this time series between 1966 and 1967; beginning in 1967, the single constant factor is replaced by a quantity-weighted factor—quantity-weighted averages of the major components of liquefied petroleum gases are calculated by using heat content values shown in Table A1.

<sup>7</sup> There is a discontinuity in this time series between 1993 and 1994; beginning in 1994, the single constant factor is replaced by a quantity-weighted factor—quantity-weighted averages of the major components of motor gasoline, including fuel ethanol, are calculated by using heat content values shown in Table A1.

<sup>8</sup> Includes denaturant (petroleum added to ethanol to make it undrinkable). Fuel ethanol factors are weighted average heat contents for undenatured ethanol (3.539 million Btu per barrel), pentanes plus used as denaturant (4.620 million Btu per barrel), and conventional motor gasoline used as denaturant (5.253

million Btu per barrel). The factor for 2009 is used as the estimated factor for 1980-2008.

<sup>9</sup> Corn input to the production of undenatured ethanol (million Btu corn per barrel undenatured ethanol), used as the factor to estimate total biomass inputs to the production of undenatured ethanol. Observed ethanol yields (gallons undenatured ethanol per bushel of corn) are 2.5 in 1980, 2.666 in 1998, 2.68 in 2002, and 2.764 in 2009; yields in other years are estimated. Corn is assumed to have a gross heat content of 0.392 million Btu per bushel. Undenatured ethanol is assumed to have a gross heat content of 3.539 million Btu per barrel.

<sup>10</sup> Soybean oil input to the production of biodiesel (million Btu soybean oil per barrel biodiesel), used as the factor to estimate total biomass inputs to the production of biodiesel. It is assumed that 7.65 pounds of soybean oil are needed to produce one gallon of biodiesel, and 5.433 million Btu of soybean oil are needed to produce one barrel of biodiesel. Soybean oil is assumed to have a gross heat content of 16,909 Btu per pound, or 5,483 million Btu per barrel. Biodiesel is assumed to have a gross heat content of 17,253 Btu per pound, or 5,359 million Btu per barrel.

R=Revised. P=Preliminary. E=Estimate. NA=Not available.

Notes: • Residential and commercial petroleum heat contents are revised beginning in 1949 due to a change in the estimation methodology for the physical data in Table 5.13a. • The heat content values in this table are for gross heat contents. See "Heat Content" in Glossary.

Web Page: For all data beginning in 1949, see [http://www.eia.gov/emeu/aer/append\\_a.html](http://www.eia.gov/emeu/aer/append_a.html).

Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A6.